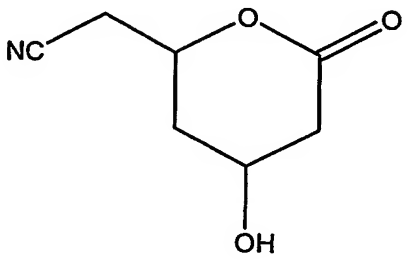
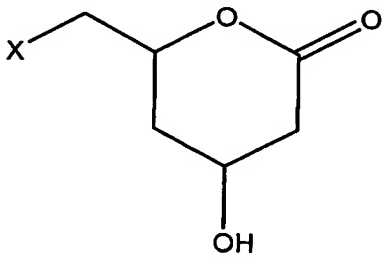
CLAIMS

1. Process for the preparation of a compound of formula 1



(1)

wherein a compound of formula 2



(2)

wherein X stands for a leaving group is reacted with a cyanide ion in water and wherein the pH is subsequently lowered to a pH between 0 and 5.

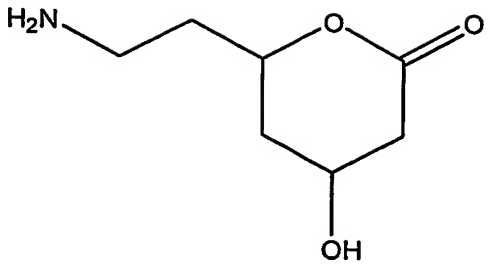
2. Process according to claim 1, wherein the cyanide ion concentration is at least 1 mole per litre.

3. Process according to claim 1 or claim 2, wherein the molar ratio between the total quantity of cyanide ion and the total quantity of compound of formula 2, is between 0.5 and 10.

4. Process according to any of claims 1-3, wherein the compound of formula 1 is first treated with a base prior to being reacted with a cyanide ion.

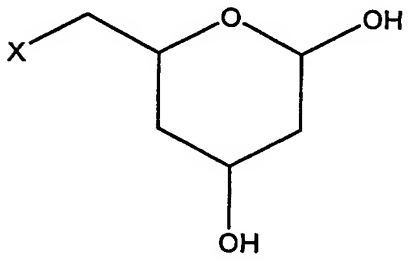
5. Process according to claim 4, wherein the base is used in a molar ratio of between 0.3 and 3 as compared to the amount of compound of formula 2.

6. Process according to any of claims 1-5, wherein the compound of formula 1 is reduced with a suitable reducing agent to form the corresponding compound of formula 3:



(3)

7. Process according to any of claims 1-6, wherein the compound of formula 2, wherein X stands for a leaving group is prepared by an aldol condensation between acetaldehyde and an aldehyde which is substituted on the 2-position by X, wherein X is as defined above, in the presence of an aldolase and by subsequent reaction of the formed compound of formula 4,

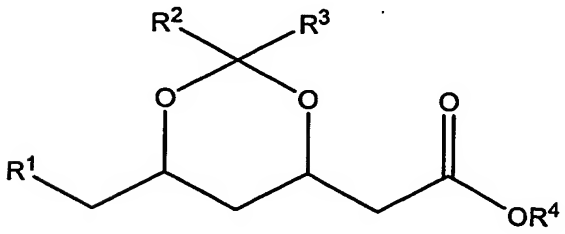


(4)

wherein X is as defined above, with an oxidizing agent.

8. Process according to claim 7, wherein the aldolase used is 2-deoxyribose-5-phosphate aldolase (DERA, EC 4.1.2.4) or a mutant thereof.

9. Process according to any of claims 1-8, wherein a compound of formula 1 or a compound of formula 3 is converted into a compound of formula 6,

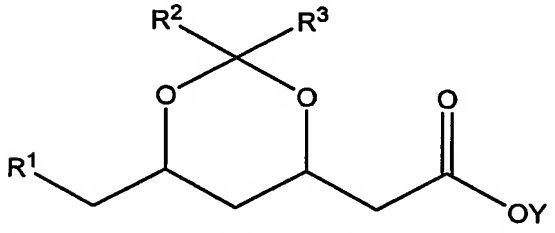


(6)

wherein R^1 stands for CN or CH_2NH_2 and R^2, R^3 and R^4 each independently stand for an alkyl, an alkenyl, a cycloalkyl, a cycloalkenyl, an aryl or an aralkyl group and wherein R^2 and R^3 may form a ring together with the C-atom to

which they are bound use being made of a suitable acetal forming agent, in the presence of an acid catalyst and wherein the compound of formula 6 with R^1 stand for CN is optionally reduced with a suitable reducing agent to form the corresponding compound of formula 6 with R^1 stands for CH_2NH_2..

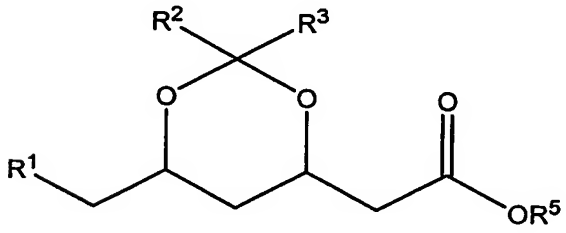
10. Process according to claim 9, wherein a compound of formula 6, wherein R^1 stands for CN or CH_2NH_2 and wherein R^2, R^3 and R^4 are as defined above is subsequently hydrolysed in the presence of a base and water to form the corresponding salt of formula 7,



(7)

wherein Y stands for an alkali metal or a substituted or unsubstituted ammonium group, optionally followed by conversion of the salt of formula 7 to the corresponding acid (the compound of formula 7, wherein Y stands for H) and wherein the salt or acid of formula 7 with R^1 stands for CN is optionally reduced with a suitable reducing agent to form the corresponding salt or acid of formula 7 with R^1 stands for CH_2NH_2.

11. Process according to claim 10, wherein the salt of formula 7 or the acid of formula 7 is converted into the corresponding ester of formula 8



(8)

wherein R^1 stands for CN or CH_2NH_2, wherein R^2 and R^3 are as defined above and wherein R^5 may represent the same groups as given above for R^2, R^3 and R^4, in a manner known per se.

12. Process according to claim 11, wherein the salt of formula 7 is converted into the corresponding ester of formula 8 by contacting the salt of formula 7 in an inert solvent with an acid chloride forming agent to form the corresponding

acid chloride and by contacting the formed acid chloride with an alcohol of formula R^5OH, wherein R^5 is as defined above, in the presence of N-methyl morpholine (NMM), and wherein the salt or acid of formula 7 with R^1 stands for CN is optionally reduced with a suitable reducing agent to form the corresponding salt or acid of formula 7 with R^1 stands for CH_2NH_2.

13. Process according to any of claims 7-12, wherein the compound with a nitrile group (R^1 stands for CN) is reduced with a suitable reducing agent to form the corresponding compound with an amine group (R^1 stands for CH_2NH_2).

14. Process according to any of claims 1-13, wherein the obtained compound is enantiomerically enriched.

15. Process according to any of claims 1-14, wherein the obtained compound is further converted into statin, preferably Atorvastatin or its calcium salt in a manner known per se.

16. Use of a compound obtained by a process according to any of claims 1-15 in the preparation of a pharmaceutical preparation, preferably a statin, more preferably Atorvastatin.

17. (4-hydroxy-6-oxo-tetrahydro-pyran-2-yl)-acetonitrile, 6-(2-amino-ethyl)-4-hydroxy-tetrahydro-pyran-2-one, (6-cyanomethyl-2,2-dimethyl-[1,3]dioxan-4-yl)-acetic acid methyl ester, (6-cyanomethyl-2,2-dimethyl-[1,3]dioxan-4-yl)-acetic acid ethyl ester, (6-cyanomethyl-2,2-dimethyl-[1,3]dioxan-4-yl)-acetic acid *i*-propyl ester, (6-cyanomethyl-2,2-dimethyl-[1,3]dioxan-4-yl)-acetic acid *n*-propyl ester, [6-(2-amino-ethyl)-2,2-dimethyl-[1,3]dioxan-4-yl]-acetic acid methylester, [6-(2-amino-ethyl)-2,2-dimethyl-[1,3]dioxan-4-yl]-acetic acid ethylester, [6-(2-amino-ethyl)-2,2-dimethyl-[1,3]dioxan-4-yl]-acetic acid *i*-propylester, [6-(2-amino-ethyl)-2,2-dimethyl-[1,3]dioxan-4-yl]-acetic acid *n*-propylester.

18. Compound according to claim 17, wherein the compound is enantiomerically enriched.